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Research Article

Post Herpetic Neuralgia- A Case Report

Dr. Shilpa Khullar Sood[1*], Dr Megha Jain[2], Dr. Hariyabbe Rangaswamy Likhithaswamy[3], Dr Bhaskar Agarwal[4]

[1*]Professor and Head, Amrita Institute of Medical Sciences and Research Centre, Amrita Vishwa Vidyapeetham, Faridabad Campus, Email: shilpaks@fbd.amrita.edu, Orchid Id - 0009-0004-7936-3185
[2]Associate Professor, Amrita Institute of Medical Sciences and Research Centre, Amrita Vishwa Vidyapeetham, Faridabad Campus, Email: meghajain@fbd.amrita.edu, Orchid Id - 0009-0009-6950-6193
[3]Lecturer, Department of Oral pathology, Sri Siddhartha Dental College & Hospital, Sri Siddhartha Academy of Higher Education, Tumakuru, Karnataka, https://orcid.org/0000-0001-6073-491X
[4]Professor JG, Department of Prosthodontics, King George's Medical University, Lucknow, Email: bhaskaragarwal2@gmail.com

***Corresponding Author:** Dr. Shilpa Khullar Sood
*Professor and Head, Amrita Institute of Medical Sciences and Research Centre, Amrita Vishwa Vidyapeetham, Faridabad Campus, Email: shilpaks@fbd.amrita.edu, Orchid Id - 0009-0004-7936-3185

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ABSTRACT

Varicella zoster virus (VZV), which lies latent in the dorsal root ganglion, reactivates at times to cause an acute, self-limiting neuro-cutaneous viral infection known as Herpes Zoster (HZ). Commonly affects elderly and immunocompromised patients. Infection usually presents as a vesicular rash limiting to a single area of skin and is characterized by unilateral pain, burning and tingling, sometimes leading to Post Herpetic Neuralgia (PHN). PHN which is the common complication of HZ, is usually a constant or intermittent burning, stabbing or sharp shooting pain with hyperalgesia or allodynia, persisting beyond the healing of herpetic skin lesions noted. Here is a case report of PHN evolved from HZ in elderly female affecting all 3 branches of trigeminal nerve with unilateral vesicle over right eyelid and mild pain & swelling on right side of upper and lower lip area with intra-oral involvement of labial mucosa of the same side. Though PHN improves overtime, early diagnosis and treating them improves prognosis and reduces emotional burden especially in older individuals.

Keywords: Herpes Zoster, Post Herpetic Neuralgia, Pain, Head and neck, non-odontogenic pain.

Introduction

Post herpetic neuralgia (PHN) is a persistent pain that can occur in the dermatome affected by muco-cutaneous herpes zoster (HZ) following the resolution of the vesiculo-papular rash. Typically, PHN resolves naturally within a few weeks or months after the rash disappears. Nevertheless, there are occasions where the pain may persist for a longer duration. Post herpetic neuralgic pain is distinguished by the presence of allodynia and hyperalgesia in response to non-harmful mechanical and thermal stimuli. Furthermore, patients may feel sudden, intense pain that is frequently characterized as electric shock-like, searing, acute, or shooting. Prodromal, acute, and chronic neuropathic phases are the three sequential stages of HZ, although few individuals may not have symptoms in all of them. When the trigeminal nerve's maxillary or mandibular division is affected by the HZ, oral manifestation happens.[1-6]The pain can arise after 3 months of active HZ infection and can last for years. Fatigue, lack of appetite, weight loss, sleep disturbances, reduced physical activity, depression, anxiety, and a decline in social interactions are frequently observed in individuals with post herpetic neuralgic pain.[4-8]

Latent VZ viruses (VZVs) reactivate in the neuronal cells of the dorsal root ganglia and multiply, causing direct cytopathic harm to both central and peripheral neurons. Additionally, the inflammatory tissue damage mediated by VZV exacerbates neuralgic pain. The ganglionitis and neuritis induced by VZV during the acute stage of herpes zoster (HZ) trigger a strong local sympathetic reaction, leading to vasoconstriction and subsequent ischemic nerve damage and pain. Consequently, this contributes to the severity of the acute neuritic pain.[9-11]The acute stage of herpes zoster (HZ) is characterized by bio pathological processes that might

eventually result in peripheral and central sensitization. The downregulation of central pain inhibitory pathways, alterations in the expression of neuropeptide-encoding genes, and an increase in receptive fields are indicative of this. As a result, there is an increased excitability of dorsal horn neurons, that can lead to spontaneous firing altering the sensory function within the neurons, which result in symptoms like allodynia, hyperalgesia, burning sensations, and electric shock-like feelings that are commonly associated with post-herpetic neuralgic pain.[3-7] Additionally, the damage to neurons caused by the varicella-zoster virus (VZV) can also result in a temporary or permanent decrease in the ability to sense certain stimuli. Nevertheless, the precise connection between the different aspects of pain and the sensory dysregulation brought on by VZV is still unclear.[12-15]

In this article, we emphasize that there exists a diagnostic challenge with those presenting with atypical pain in oro-facial region having only mild symptoms and treat it early using conservative method.

Case report:

A 52-year-old female patient complained of pain intraorally on right side of labial mucosa and slight swelling on the right side of the face since 1 week. She disclosed that the discomfort started suddenly and had persisted for the previous month. Presently she experienced a sharp discomfort in right labial mucosa (Fig 1) and in the area of the mouth surrounding the right upper and lower lip (Fig 2&3) and also mild swelling in the pre-auricular areas, eyebrows, and temple on the right side. Vesicles noted near the right eyebrow region. (Fig 4)

Patient gives history infected with herpes zoster six months back for which she received therapy for the same. Earlier when contracted HZ, she experienced constant 5–6 throbbing and mild burning pain, which increased to 7–8 on a 0–10 Visual Analog Scale while the patient chewed. The treatments for herpes zoster infection included multiple medications like Penvir 500 thrice daily, Gabapentin (100mg) + Nor-tryptyline (10mg), Pan-D,Ultracet. Her past medical history revealed high cholesterol level for which she is under medications and is under control and had chicken pox at the age of 4 years. There was no family history of orofacial pain/TMD. She had a stressful situation at home and family discord. Despite her admission that she had not slept well for the previous three to four years, she did not experience pain when she woke up in the morning. She also mentioned not having any bruxism-related habits. She was experiencing lower back and calves ache. The results of the TMJ, cranial nerve, and extraoral examinations were normal. There were no painful spots found when relevant muscles in the head and neck region were palpated. Additionally, a cervical screening turned up nothing untoward. Intra-oral examination revealed caries w.r.t 48.

Investigation such as complete blood tests for fibromyalgia and rheumatoid arthritis were done which showed insignificant findings. An OPG x-ray was advised to rule out any odontogenic lesions on the right side which showed only carious 48 and extraction of the same was carried out with oral prophylaxis.

Differential diagnosis includes trigeminal neuralgia (TN), post-traumatic trigeminal neuropathy (PTTN), and traumatic peripheral nerve lesions as similar kind of localized, repeatable neuropathic pain can be noted.

Based on previous history of acquitted HZ and unilateral pain and discomfort in right side of face with dental pain in the right posterior teeth and presence of vesicle near right eyelid and eyebrow our case was diagnosed as Post Herpetic Neuralgia. Our patient was treated with topical gabagesic gel (Gabapentin 6% and Lidocaine 5% and Baclofen 2%), thrice daily on labial mucosa and amitriptyline (10mg), Pregabalin(100mg) twice daily for 1 month. The patient had weekly re-evaluation visits for approximately a month. The pain reduced continuously over this period, to almost 1 on the 0-10 VAS score from 7-8. At the end of one month, patient was relieved of pain. These conservative treatments have a decent to favourable prognosis for PHN oral symptoms.

Discussion:

Herpes Zoster (HZ), sometimes known as Shingles or Zona, is a self-limiting, acute, localized viral infection brought on by the Varicella zoster virus's (VZV) reactivation.[1-5] Viral replication is triggered by the reactivation of latent VZV that was acquired during prior episodes of VZV infection (chickenpox) and has remained dorsal root ganglia neural cells in a latent form. The virus then spreads to the skin and mucosa by traveling down the sensory nerve**.** [1-5]According to Wim Opstelten et al., Chen et al., and a few other authors, the male predilection rate is 2.5/1000 patients/year and the female predilection rate is 3.9/1000 patients/year.[3,5]According to Chen SY et al.'s study, patients under the age of 65 have a lower incidence of HZ, meaning that HZ is more common in older age groups.[5]One fourth of the population pose risk of getting infected with HZ during their lifetime and two thirds of people with the disease are mostly aged above 50 years or older.[2] Our case is similar to literature studies where HZ diagnosed in 52 year old female patient. Malnutrition, steroid-using patients, chemotherapeutic agents, diabetes, cytotoxic drugs, cancers like leukaemia and lymphoma, and immune system problems, Chronic Obstructive Pulmonary Disease (COPD), are among the numerous trigger factors. Trauma and stress can lead to reactivation of VZV due to reflex irritation and hyperaemia of ganglion as found by a study of Wareham D et al.[4] This can be correlated with our case since the patient gave history of stressful situation at home and had disturbed sleep pattern since 3 -4 years. Then, unilateral vesicular eruptions and sharp, dermatome-localized pain may result from reactivated VZV. HZ on the skin usually starts with localized prodromal pain and manifests as distinct red areas where vesicles form, burst, and form crusts within seven to

ten days. However, it might take a month or more for these lesions to heal.[7,9,14] HZ oral mucosal eruptions follow a comparable clinical course to cutaneous lesions. But they don't form crusts because of the moist environment. The descending VZV triggers an inflammatory response that impacts neural and mucocutaneous tissues. This amplifies inflammatory pain, which in turn exacerbates neuritis pain.[2-7]Vesicular mucocutaneous eruptions, the hallmark of herpes zoster (HZ), typically precede two to three days of localized pain. It is common for the eruptions to coincide with acute neuritis, which can result in the development of post-herpetic neuralgia (PHN).[16,17]Most commonly HZ involves ophthalmic division as compared to maxillary & mandibular divisions alone as reported in literature, whereas our case involves all 3 branches of trigeminal nerve.[6] PHN which is complication of HZ is characterized by neuropathic pain symptoms, including sharp, intense, radiating pain that persists for one to three months after the eruptive stage but can also continue for years or decades. Other symptoms include hyperalgesia, allodynia, and a severe burning sensation. These symptoms may persist long after the resolution of the mucocutaneous eruption.[17] PHN is a debilitating ailment that significantly affects both the physical and emotional well-being of individuals, thereby diminishing the overall quality of life experienced by those afflicted with PHN. Approximately 10 to 15% of individuals afflicted with HZ will experience the development of PHN. While this occurrence is infrequent among those less than 40 years of age, it surpasses 50% in HZ-affected individuals aged 60 years and above.[2-5]Our case report is co-relating with earlier studies that have defined PHN as pain persisting 30 days, 90 days or 90 to 365 days following herpes zoster diagnosis. [8]

The frequency and intensity of PHN are directly linked to the severity of mucocutaneous eruptions and acute herpetic neuritis pain experienced during the acute phase of HZ. Unfortunately, there is a scarcity of evidence-based information regarding the effectiveness of various treatment modalities for PHN, thus treatment primarily relies on expert opinion. However, it is fortunate that PHN eventually resolves on its own.[1,16,17]

Anticonvulsants such as phenytoin, which are administered orally at bedtime in doses of 100–300 mg, are used to treat acute pain associated with post-herpetic neural syndrome (PHN). The dosage of carbamazepine, which is administered orally at bedtime in doses of 100–200 mg, is increased by 100 mg every three days until the dosage reaches 200 mg three times daily, the response is adequate, or the blood drug level is 6–12 mg/ml. The dosage of gabapentin, which is administered orally at bedtime, is increased by 100–300 mg every three days until the dosage is 300–900 mg three times daily or the response is adequate.[18-19]Opioids, tricyclic antidepressants, and selective serotonin norepinephrine reuptake inhibitors (SSRIs) are used in the second line of therapy. Prednisolone 60 mg is thought to initially lessen acute discomfort, but caution should be used while reducing the dosage, according to Nagalaxhmi V et al.[20] The usage of this medication is still debatable. Additional cutting-edge therapeutic approaches include spinal cord stimulation, anterolateral cordotomy, and electrical stimulation of the thalamus, intercostal nerve cryotherapy, pulsed radiofrequency ablation, and injections of botulinum toxin to lessen the severity of post herpetic neural neuropathy.[18-20]

Conclusion:

Trigeminal neuralgia and post-herpetic neuralgia are both excruciating, incapacitating illnesses that frequently respond poorly to therapy, leading to psychosocial dysfunction and a diminished quality of life. While HZ affecting the trigeminal nerve and its branches might resemble other oral diseases, HZ complications result in the most excruciating post-herpetic neuralgia. As PHN affects mostly elderly patient, it causes intense emotional burden affecting sleep pattern leading to drug dependence and possibly to depression and even suicidal tendency in extreme cases. Early diagnosis and proper treatment at initial stage aid in avoiding the severity of PHN and prognosis of the disease. It also prevents unnecessary dental procedures performed on the patient which are not due to odontogenic in nature. To develop more effective treatment techniques, a deeper knowledge of the aetiology of these debilitating chronic pain syndromes is required.

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Fig 1.Oral Mucosal Site of Pain on upper and Lower Lip

Fig 2.Sensory Site of Pain (Front)

Fig. 3 Sensory Site of Pain (Right side of Face)

FIG 4. Herpes Zoster of Ophthalmic division of Trigeminal Nerve